IN THE CLAIMS

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims:

1. (Original) A positron emission tomography camera or scanner comprising:

a patient area,

a detector ring for detecting radiation from opposite sides of the patient area, the ring including a plurality of scintillation detectors directed towards the patient area, the scintillation detectors being such as to emit light when radiation is incident thereon, and

converting means optically coupled to the scintillation detectors for converting light emitted by the scintillation detectors to electrical pulses,

wherein each of the plurality of scintillation detectors comprises lutetium-yttrium-aluminate-perovskite, $Lu_xY_{1-x}AP$ (where $0.5 \leq x \leq 0.995$).

2. (Cancelled)

3. (Original) The positron emission tomography camera or scanner of claim 1, wherein each of the scintillation detectors comprise at least one further layer of material disposed adjacent the lutetium-yttrium-aluminate-perovskite , the said material comprising one of the group comprising LSO, GSO, BGO, LGSO, YAP, YSO and LYSO.

4. (Currently Amended) ~~The positron emission tomography camera or scanner of claim 1,~~ A positron emission tomography camera or scanner comprising:

a patient area,

a detector ring for detecting radiation from opposite sides of the patient area, the ring including a plurality of scintillation detectors directed towards the patient area, the scintillation detectors being such as to emit light when radiation is incident thereon, and

converting means optically coupled to the scintillation detectors for converting light emitted by the scintillation detectors to electrical pulses,

wherein each of the plurality of scintillation detectors comprises lutetium-yttrium-aluminate-perovskite, $Lu_xY_{1-x}AP$ (where $0.5 \leq x \leq 0.995$), and

wherein each of the scintillation detectors comprise said $Lu_xY_{1-x}AP$ as a first layer and at least one further layer disposed adjacent the first layer, the further layer comprising $Lu_xY_{1-x}AP$ wherein for said at least one further layer the value of x is selected to provide appropriate differences in the time constant of the $Lu_xY_{1-x}AP$ of the first layer and the electrical pulse shape of the $Lu_xY_{1-x}AP$ of the first layer.

5. (Currently Amended) The camera or scanner of claim ~~2~~3, wherein determining means are provided for determining whether detected radiation was incident on the lutetium-yttrium-aluminate-perovskite or the at least one further layer.

6. (Currently Amended) The camera or scanner of claim 3, wherein ~~the~~ determining means are provided for analyzing ~~operable to analyse~~ the electrical signal to determine a pulse shape, the pulse shape being indicative of whether detected radiation was incident on the lutetium-yttrium-aluminate-perovskite or the at least one further layer.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Original) The camera or scanner of claim 1, wherein the converting means comprise at least one photomultiplier tube.

14. (Original) The camera or scanner of claim 13, wherein the or each photomultiplier tube is position sensitive.

15. (Original) The camera or scanner of claim 1, wherein the converting means comprise one of photodiodes and avalanche photodiodes.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (New) The camera or scanner of claim 4, wherein determining means are provided for analyzing the electrical signal to determine a pulse shape, the pulse shape being indicative of whether detected radiation was incident on the lutetium-yttrium-aluminate-perovskite or the at least one further layer.